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Site Performance : Exploring Site-life Expectancy of Berlin's Post-railyard Parks

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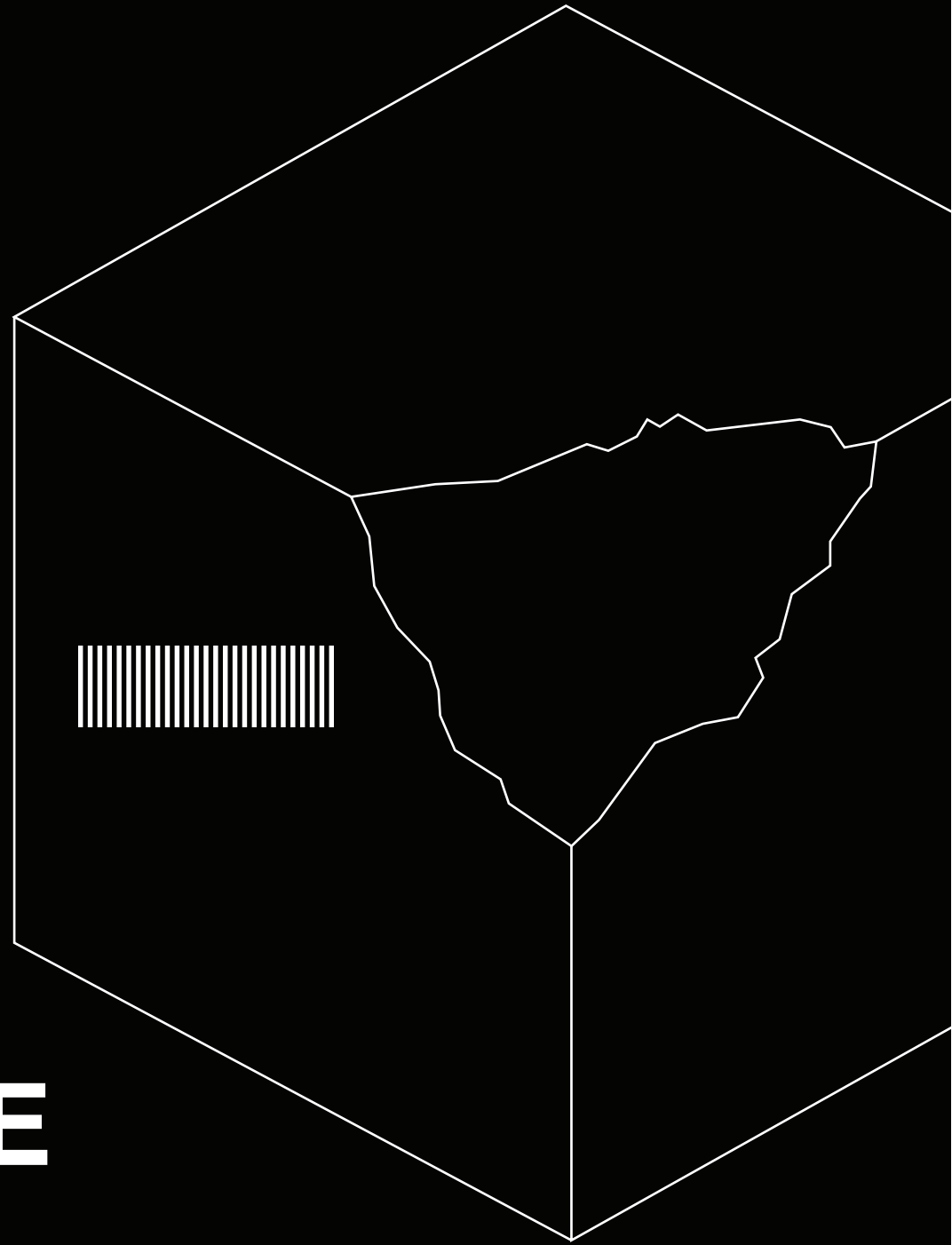
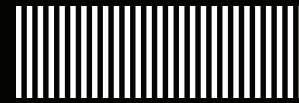
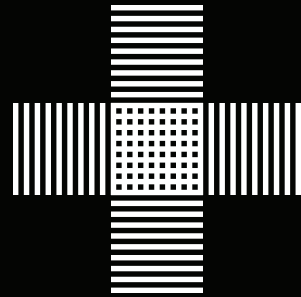
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SITE PERFORMANCE

E. BISCHOF | OFF CAMPUS | 2017

... exploring site-life expectancy of Berlin's post-railyard parks

Eric Bischof | Off-Campus | 2017

SUNY-ESF DLA

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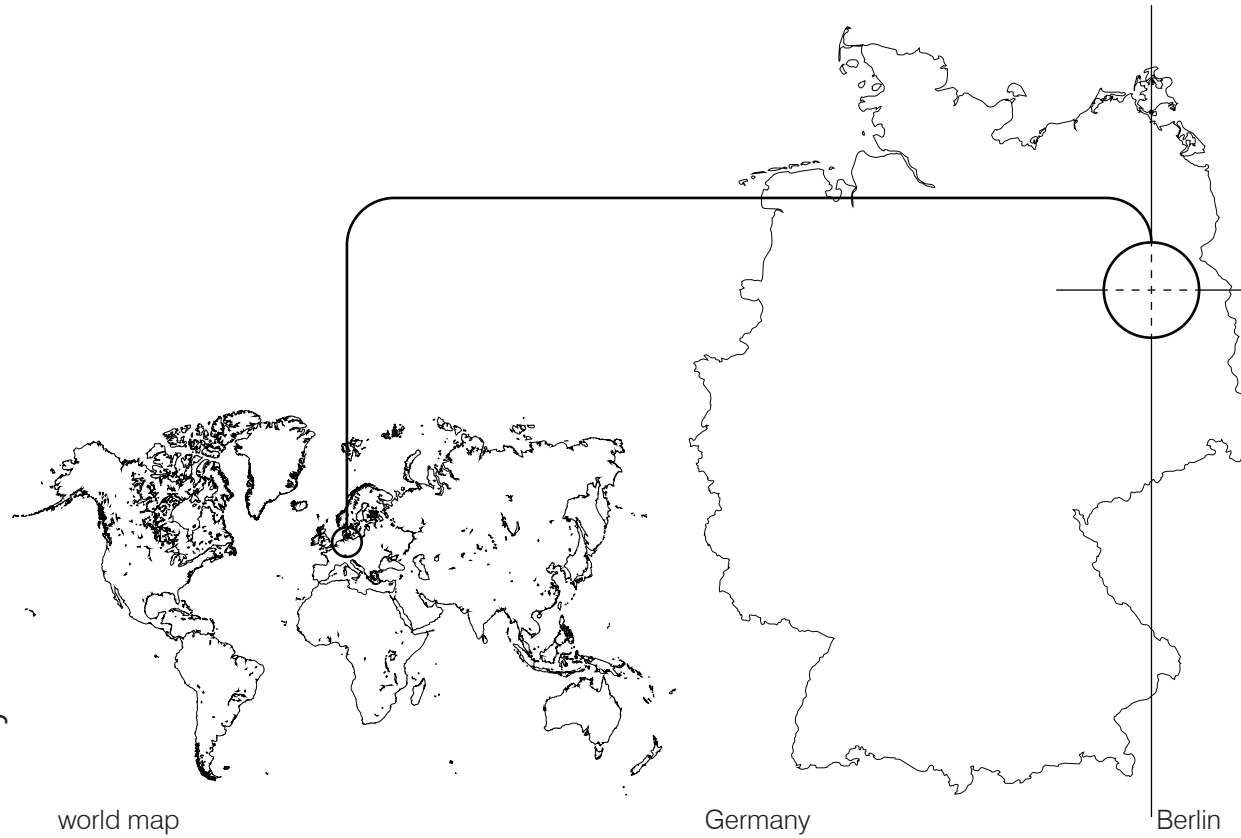


TABLE OF CONTENTS

3-4	project outline
5-8	Berlin overview
9-10	“Grün Berlin”
13-14	site selection
15-26	Mauerpark
27-36	Park am Nordbahnhof
37-48	Park am Gleisdreieck
49-50	summary
51-53	site solutions
54	conclusion

[Abstract]

This comprehensive study examines the impact of natural processes plus time on a site's post construction period within the urban construct observing its relative impact on site performance. Looking further into site performance will discover durability, function, aesthetics, and management within urban spaces. Berlin, Germany served as the test location from 8.23–11.21.2017.

[Purpose]

Post construction time period within the urban fabric is an idea that will show just how a site changes over time. Urban sites are susceptible to multiple evolution factors, from initial design to maintenance. The intent of looking at post construction is to lay a groundwork to extract how the spaces are changing based on degradation. Performing basically a landscape forensic, it will be important to research and find what it was opening day versus what it is now.

Performance can be measured by numerous outcomes such as: durability, longevity, use, care, profitability, productivity, flexibility, adaptability, and growth. Observations and comparisons between certain public spaces will begin to define what makes a space successful through numerous examples of common elements that last. Finding what makes spaces able to last a long time and the ability to remain in use or utilized could make for better future designs and new innovations. The study's outcomes can define what to do and what not to.

[Definition]

The study of site evolution further defined by performance is based on three typologies [design, maintenance, construction quality] that will lead to the site's failure or success. Success being defined as the space functioning as intended through research. Failure being defined as the space functioning as unintended through research. An analysis that corresponds to the site's degradation, from cracking to graffiti, conducts a landscape forensic.

Topic|Study

Post construction with site changing over time| how these spaces are changing ending up with a final performance

Question:

How are urban spaces in Berlin, Germany changing over time in the post construction period in regard to degradation of landscape elements?

Subquestions:

1. How are public spaces kept within the Berlin urban environment?
2. How visible is degradation of landscape elements in the Berlin urban environment?
3. What impact does the degradation have on certain landscape elements?
4. Are certain elements degrading more than others and why?
5. Are there spaces or elements that people are not using? Why?
6. What is there now that is different than opening day?

Making the key observations to find out what is working and what is not working in a certain site and why. Review the certain materials used for final design and find what makes a site successful or unsuccessful.

Methods: mapping, research, sketching, photography, evaluation, inventory

German Capital

What was once a divided city, has now become one of the most popular cities in the world and the leading economic power in Europe. Berlin's unthinkable and bumpy past, has left the city in constant shambles desired to be restored. What is there now that has remained over the years or what has been restored gives Berlin that much more of a sense of place and starts to define its landscape. Berlin is not an ordinary European city and you will not find incredible pieces of architecture but what you will find is what has survived years of turmoil and a population devoted to a strong culture.

(map)_right
shows current infrastructure within city limits

Statistics¹

Currency: Euro
Area_ 891.7 km² (344.3 sq mi)
Elevation_ 34 m (112 ft)
Population (2016)_City: 3,671,000
Density: 4,100/km² (11,000/sq mi)
Metro: 6,004,857
GDP/ Nominal_ \$152 billion (2016)

1: Berlin. (n.d.). Retrieved December 6, 2017, from <https://en.wikipedia.org/wiki/Berlin>

[Berlin, Germany]

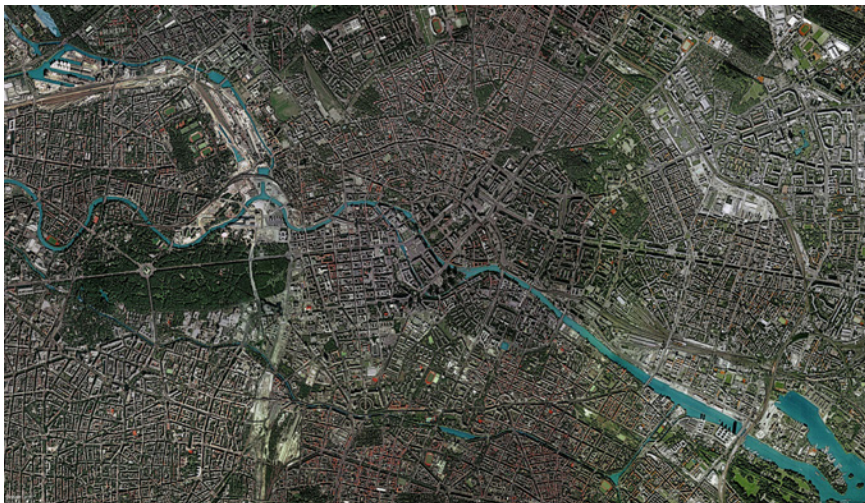




Berlin_1943



Berlin_1953

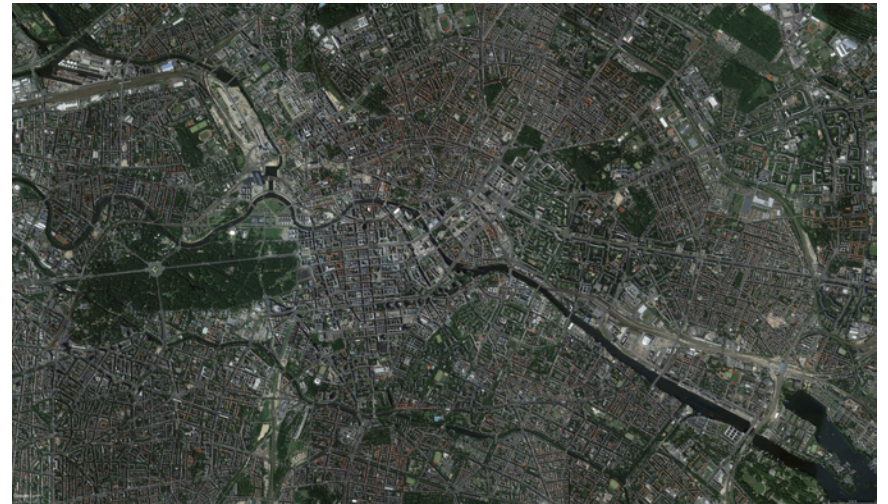


Berlin_2000

Time Period Maps

The timeline displayed to the left by the aerial imagery shows the result of war aftermath on a large city. The city has changed significantly and continues to be a place of constant construction. Because of this aspect, Berlin is considered more of a new city as a good percentage had to be rebuilt.

Berlin_2017



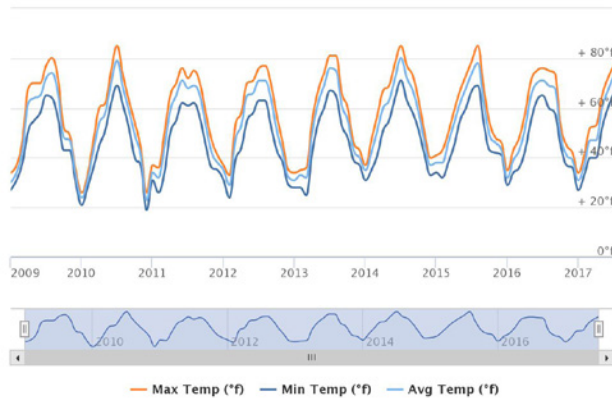
Berlin Now

Around one-third of the city's area is composed of forests, parks, gardens, rivers, canals and lakes. There are new standards emerging to make Berlin green. A large movement/group, called Grün Berlin, starts projects to initiate making more spaces and parks green. This helps to fund park redesign efforts and is a good attribute for a city. Berlin contains a ton of potential for post industrial design.

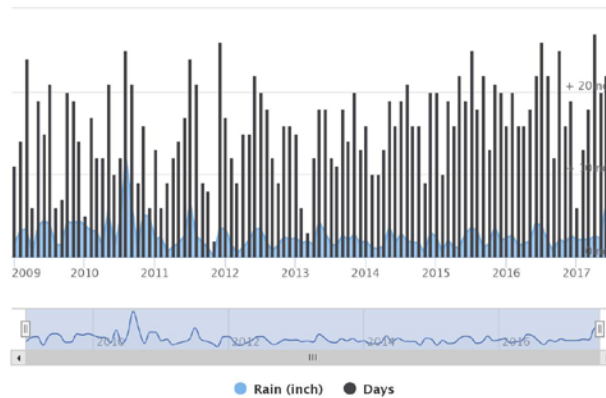
Berlin's Climate

Observing and researching the climate of Berlin is important as it has an impact on material life expectancy. Annual precipitation is 22 in. with moderate rainfall throughout the year.² Snowfall mainly occurs from December through March.² Out of the days of the study, rain occurred for more than half of the days, however, rain occurred overnight as well. The weather in Berlin is unpredictable. There was an observable pattern with the weather daily. If it was raining in the morning, the weather would be sunny the rest of the day and vice versa.

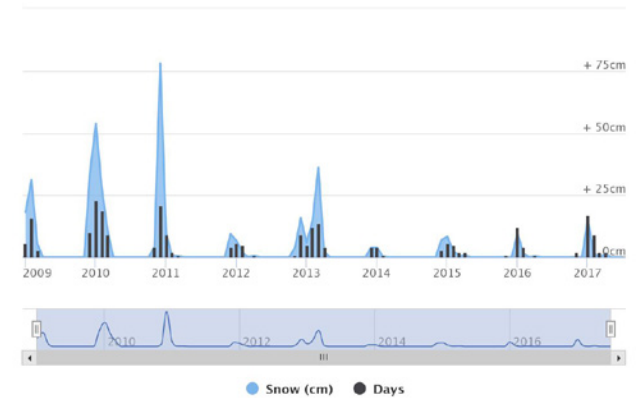
max, min and average temperature²



average rainfall and rain days²



average snowfall and snow days²



2: Berlin Monthly Climate Averages. (n.d.). Retrieved December 8, 2017, from <https://www.worldweatheronline.com/lang/en-us/berlin-weather-averages/berlin/de.aspx>



Climate Impact

A reasonable question that arises when observing Berlin's climate is "what can these conditions do to certain materials". With the chance of freezing during the months of November to April, it can cause expanding and contracting of water contained on or in materials. This aspect can be seen with potholes in the road or cracking in concrete. Certain measures need to be taken so that water moves off of said surfaces. Freezing impacts integrity and life expectancy.

Given the average temperatures, specific materials for elements are more comfortable in colder climates. Wood is a common material for a seating element as it not as cold to sit on as granite or metal. However, with the amount of rainfall and rain days in Berlin can lead to rotting of wood.



left_top: wood bench in Gleisdreieck
 left_middle: pooling of water in Mauerpark
 left_bottom: skate ramp in Nordbahnhof
 right: water bleeding at Memorial to Murdered Jews block due to humidity & temperature



Berlin is one of the greenest cities in Europe. The urban and culturally significant open space projects contribute significantly to the quality of life and identity of the capital of Germany. The Grün Berlin Group has had a significant influence on the cityscape of Berlin such as the International Garden Exhibition Berlin 2017, or the Britzer Garten and the tourist information system.

As a state-owned group of companies, they are responsible for the development, realization, and operation of complex open-space projects. They handle a large number of projects and parks that hold major tourist interest. The group uses interdisciplinary expertise and decades of experience with a team of landscape architects, architects, civil engineers, city planners, geographers, financial accountants, cultural and event managers. Over the years, the group alone has a total construction volume of over 350 million euros back.³

They design planning processes that offer a wide range of opportunities for citizen participation and develop long-term viable utilization and operating concepts for open spaces, parks and buildings. In the public space realm, a multitude of green cultural and recreational areas, meeting places, and park experience are created.

Statistics³

The non-profit private limited company Grün Berlin GmbH was established in 1996. The sole shareholder of the company is the state of Berlin. Grün Berlin GmbH has so far realized more than 100 projects in the capital and currently manages more than 700 hectares of public open spaces and parks, as well as more than 100 buildings.

3: Designing a green city. (n.d.). Retrieved November 5, 2017, from <https://gruen-berlin.de/en>

Grün Berlin Projects

The parks on the page are all projects managed by Grün Berlin. These are not all of them however. Three of these parks would end up being my study sites thus having more of a correlating theme.

Berlin Wall Memorial



Mauerpark



Park am Gleisdreieck



Tempelhofer Feld



Soviet War Memorial, Treptow



Park am Nordbahnhof



Lustgarten



Invalidenpark





Berlin, Germany



weather_tempeelhofer feld



culture_mauerpark



memorials_



parks_viktoripark



materiality_topographie
des terrors



Post Railyard Parks

(map)_left shows all post railyard parks within S-Bahn ring

Berlin was and still is a major train hub. However, in recent years, major train yards are not needed or located elsewhere. Over the past several decades, train yards have been abandoned and are now empty awaiting to be redeveloped. Some of the massive railyards are now being transformed into parks. Some designs incorporate the remnants to tie back to history. I have always admired post industrial landscape design and wanted to study something along the lines.

As I was selecting what sites to study for this project, I found three that would work perfectly with one another. They were spaced out, completion date wise, so I could observe life expectancy of certain materials. One was at the end of its life, one almost a decade old, and the other was opened three years ago. Mauerpark is an older park that has been exhausted from intense use. Park am Nordbahnhof is a newer park that incorporates rail remnants into the design as well as the Berlin Wall trail. The Berlin Wall went through Mauerpark too. Park am Gleisdreieck is a large open space park with many programmed spaces.

By selecting these three sites, I was able to use what I found from Mauer and Nordbahnhof to help predict what might happen to Gleisdreieck.

> site selection



site selection comparison:

Mauerpark | Nordbahnhof | Gleisdreieck

post-railyard | post-railyard | post-railyard

style >linear	>linear	>open linear
age >20+	>8	>3
size >medium	>medium	>large

“MEMORY”



[Park am Gleisdreieck]

Occupied



[Park am Gleisdreieck]

THREE PERFORMANCE TYPOLOGIES:

DESIGN_ de·sign | verb

1- Decide upon the look and functioning of (a building, garment, or other object), by making a detailed drawing of it.

MAINTENANCE_ main·te·nance | noun

1- The process of maintaining or preserving someone or something, or the state of being maintained.

[CONSTRUCTION] QUALITY_ qual·i·ty | noun

1- The standard of something as measured against other things of a similar kind; the degree of excellence of something.

-<https://en.oxforddictionaries.com/definition/>

Maintenance in Berlin [discussion with Lorenz Dexler, Topotek1]

- each district has a sum of money to put where
- no fixed budget per sq/m
- Tiergarten has areas of high and low maintenance
- cut money for maintenance by a lot 15 years ago

Culture of Berlin

The people of Berlin have always accepted parks as being “wild”. To leave a park to grow is what people like because they like to make it their own. If something is falling apart people still try to find a way to use it.

Graffiti

Berlin is coated with spray paint. It is not such a bad thing until it covers furniture or natural elements then it becomes vandalism.

Steps:

The following steps were performed at each site to find site performance.

1_Inventory

What degradation types do I see at each site?

2_Analysis

Why do I see it and how does it impact usage?

3_Conclusion

What does it mean now and for the future?

Methods:

mapping

To observe movement and location of people in a certain space at a specified time, looking specifically at usage of elements.

research

Look up more information about a site to know more than what the place can tell me. To better understand a site by knowing its past.

sketching

Using quick sketches of certain spaces, places, or elements to better understand them.

photography

To use a camera to tell a story or explain a place. I went here and this is what it is. Taking pictures to reveal evidence of degradation.

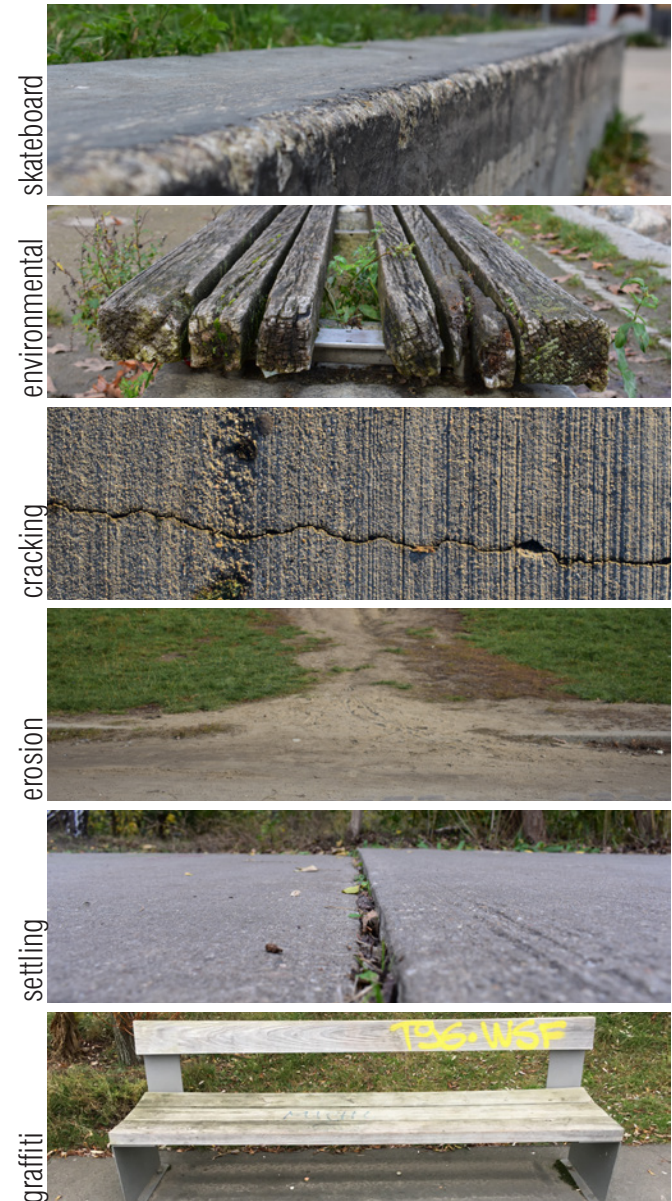
evaluation

Observing and finding what works and what does not work. Analyze the impact degradation has on usage. Complete a “Site Success” chart. Rate it on a scale made by myself the discover if the site is good or bad.

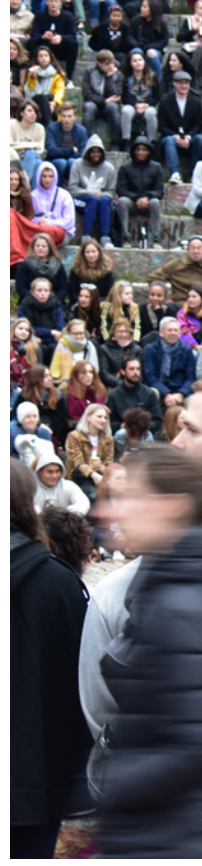
inventory

To make a complete list of the hardscape materials, furniture, and structures in a site. Take measurements and document condition. Pay close attention to the usability and signs of degradation.

Degradation Types



> Mauerpark





Mauerpark

Planning

Gustav Lange
Prof. Gustav Lange, Hamburg

Year

1994

Size

approx. 14.5 ha

Client 1

GrünBerlin GmbH
Funded by: Allianz Umweltstiftung

Client 2

Land Berlin, Senate Department for Urban
Development and Environmental Protection

The area is bordered directly by the Friedrich Ludwig Jahn Sports Park and the Falkplatz. Mauerpark links East and West and offers recreational space for the densely populated neighborhoods.

In the early 19th century, the eastern area was used as a parade ground. In 1872, a freight railway yard started to be built in the western section. When the Berlin Wall was built in 1961, the border between the East and West Berlin sectors split the park in two. When the Berlin Wall fell, it became an “empty space” and Berliners quickly discovered the potential of this piece of nature in the middle of Berlin.⁴ They found it could be a green space and relaxation.

Mauerpark is located between the districts of Wedding and Prenzlauer Berg and was the first park planned after the fall of the Wall. After a design by Gustav Lange, the first half in the former eastern part of the city, was completed in 1994. In the following years the park was extended to the north.⁴ Essential elements in the park are the large lawn, amphitheater, and embankment which offers an excellent view to the west. Many people go to the park just to get a great view of the sunset. The back wall, graffiti-covered, has remained as the boundary between stadium and park, as well as the asphalt road.

It was and is used to its capacity and has become a tourist attraction. Mauerpark Sunday's, with the adjacent flea market and karaoke, floods the park with people. The intense use overwhelms the lawn.

4: Der Mauerpark (n.d.). Retrieved November 12, 2017, from <http://www.parcview.de/themen/uebersicht/details/15>

Inventory Matrix:

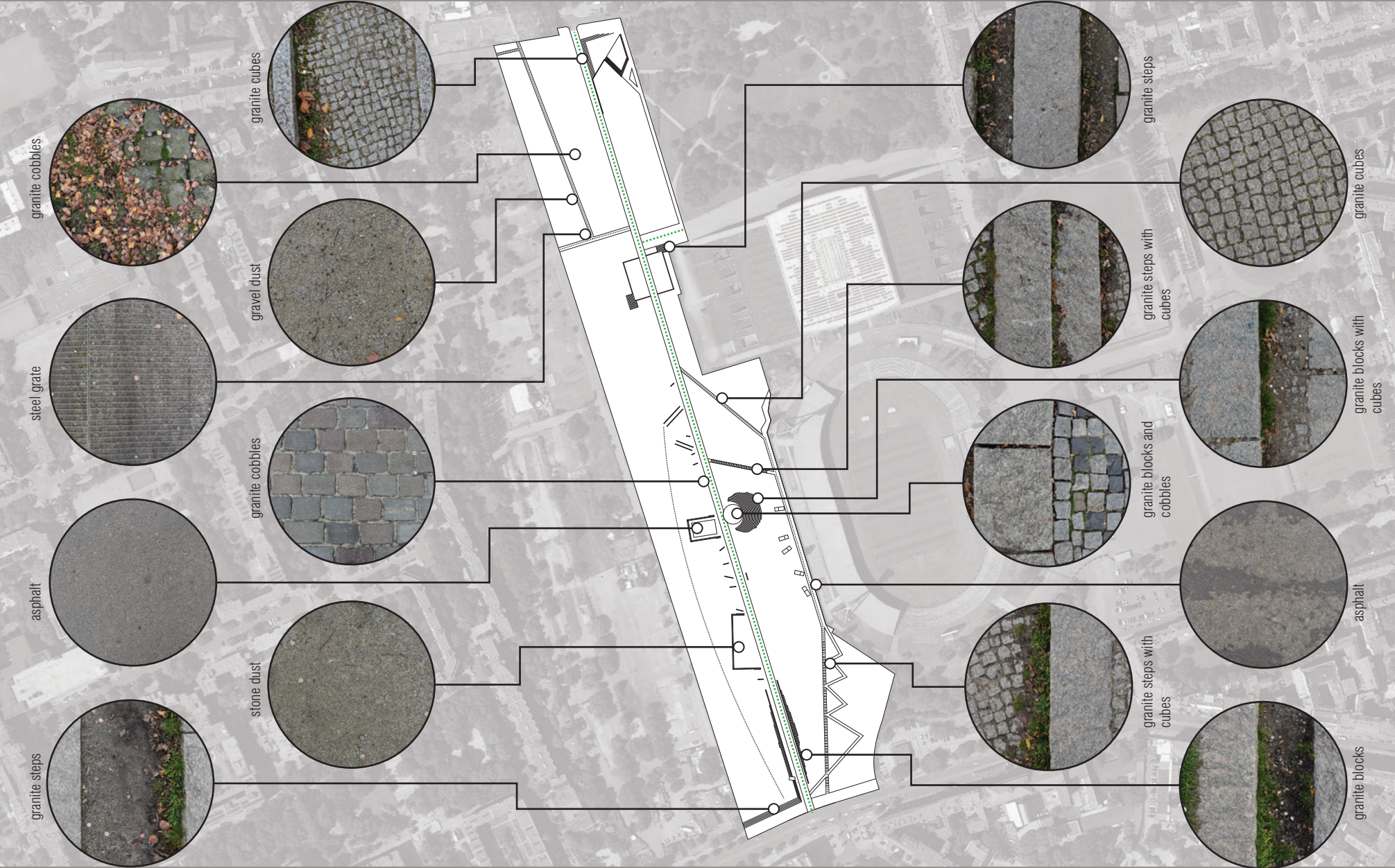
Observations

- a common theme is how much people enjoy elevated slopes
- mostly used as a passing through space
- at south entrance off Bernauer Strasse a series of tiered seat walls along main path are overgrown with shrubbery
- every day at about 2pm an increase of people in the park
- cobble are a bumpy surface to bike on so people ride on the sides creating shoulder compaction on main path
- I noticed a bunch of tourists to the park
- beer is a part of culture, they will go to a park, open a beer, and hang out
- the graffiti wall is a battleground [friendly] and acts as a stage
- observed maintenance: emptying trash bins & shovelling sand deposits from hill erosion

type	cracking	environment	skateboard	graffiti	settling	erosion
wall						
concrete				●		
granite block	●			●	●	
steps						
granite treads					●	
furniture						
wood bench		●		●		
paving						
cobbles	●				●	
granite curb						
asphalt	●	●				
stone dust					●	●
granite cubes					●	

Material Inventory

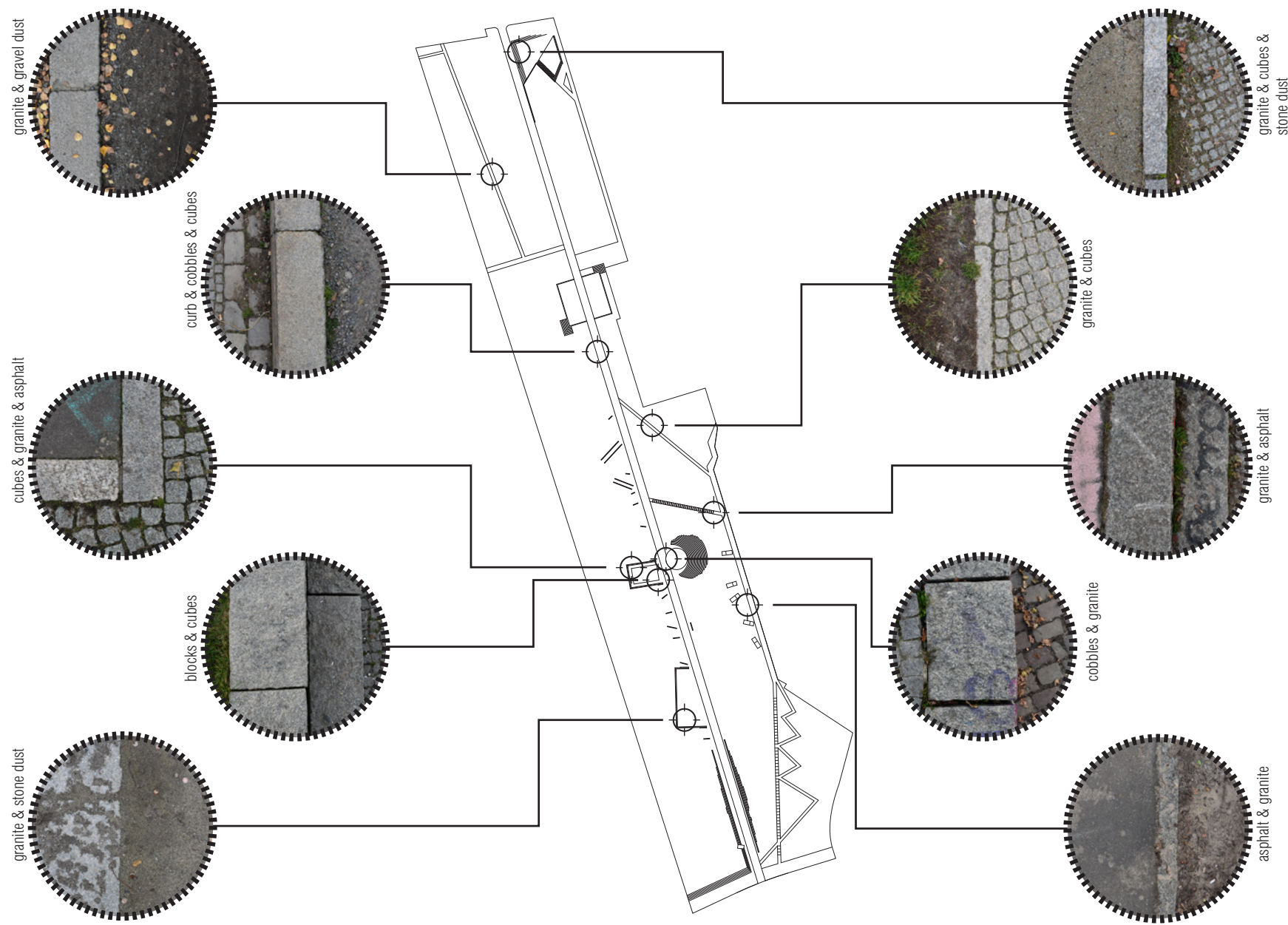
[with circulation]



..... heavy foot and bicycle traffic

..... light foot traffic

Material Clashes





Degradation Faced

Mauerpark has been exhausted from activity over the years. From overgrowth of vegetation to missing elements, the park has lasted a while given its design. What has lasted the longest is the granite, while wood elements have not. The erosion of the hillside has caused unexpected maintenance. The cowpaths now create bodies of water that split the lawn in two and acts as a barrier. A lot can be learned from this park to better prevent such degradation.

Activities Observed:

- Running
- Walking
- Napping
- Sitting
- Painting
- Biking
- Playing [dogs, people, swinging]
- Reading
- Writing
- Eating
- Kite Flying

(images)_left

The pictures show wood pieces added onto granite blocks. However, over the years some pieces of wood have rotted out resulting in unusable bench space. The temporary solution was to put pieces of plywood over the rotted areas.



> moved

> utility work

> missing



overuse



unexpected use



erosion

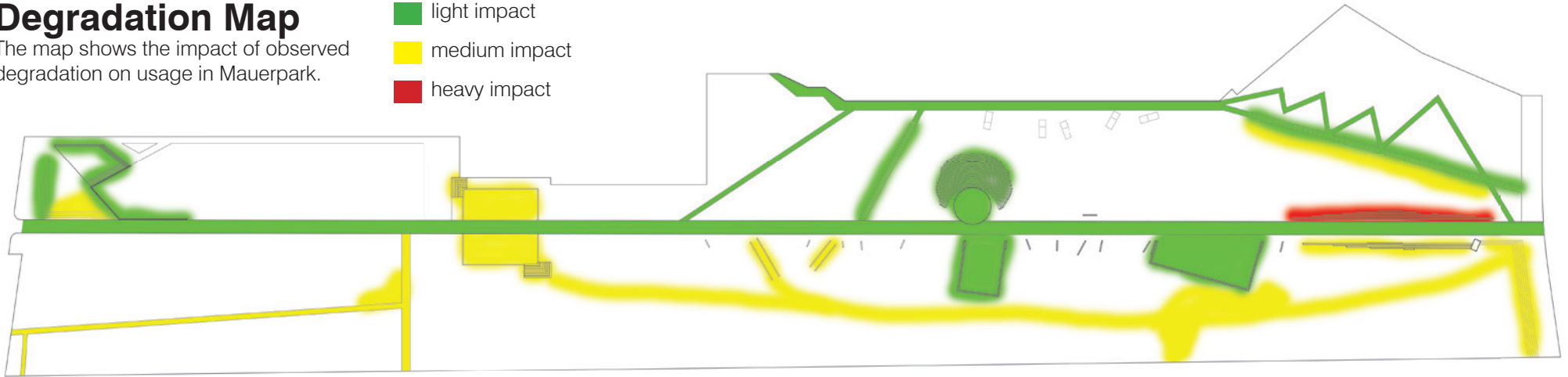


unexpected maintenance

Degradation Map

The map shows the impact of observed degradation on usage in Mauerpark.

- light impact
- medium impact
- heavy impact



compression



weathering



cracking



overgrowth



Before

> entrances



> hillside



> space



(images) 4: Der Mauerpark (n.d.). Retrieved November 12, 2017, from <http://www.parcview.de/themen/uebersicht/details/15>



After

The park faces overgrowth and settling at the south entrance



Wood was added after the fact onto the granite blocks and the park has always faced eroded paths on the embankment



Trees have developed but not all survived and a major cowpath has been established showing unplanned traffic



Mauerpark Sundays

This park is activated on Sundays with a flohmarkt and sonntagskaraoke. From these events the park is littered with people. Local bands set up and play, people gather and the band/artists act as magnets. Once one band was done crowds would migrate to another one. It faces intense day usage once a week. A 12 hour period of non-top traffic. The intense use has created major cowpaths that varies in width but gets wider around the gates to the market and by main elements like the seating area or amphitheater. Unexpected usage that I observed was a seating area roped off by a group of older men to play competitive bocce. People flood the amphitheater to watch the karaoke. [10/22 is

TIMELINE:

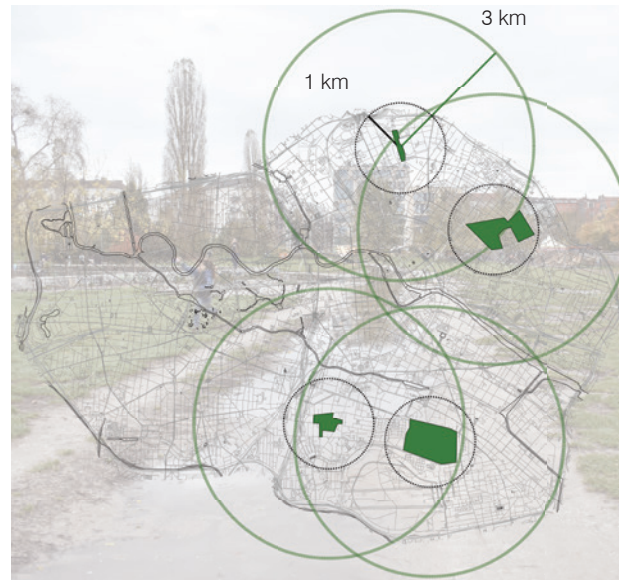
[Sunday 10.22.2017]

- 8am_ flohmarkt opens, most of market set up done
- 9am_ people begin to populate the park
- 10am_ significant amount of people
- 11am_ sonntagskaraoke begins
- 12pm_ amphitheater is full
- 1pm_ ...
- 2pm_ ...
- 3pm_ period of music performances through park
- 4pm_ ...
- 5pm_ ...
- 6pm_ people dispersed, karaoke ends, market closing, people watch sunset
- 7pm_ new crowd/people, bocce ends, no more large groups
- 8pm_ cold! people at top of hill, no more music just talking, market just about gone

(map)_right

Displays the elevated parks within the inner S-Bahn ring. Mauerpark serves a large population for people to watch the sunset.

Elevated Parks



last day for karaoke] Cowpaths are compacted and when rain is added it is a muddy mess. People even dogs jump over the large puddles. The bodies of water pushes people to the outside of the path and continue to make it wider.



Site Performance

Design

The park lives up to what its purpose was. The purpose of Mauerpark was to provide the people in the surrounding area a green space with certain attributes. Over the years it has evolved into the culture park of Berlin. Many come to enjoy the sunset, watch graffiti artists, contribute to Sundays, and find an open swing. If I had to define Berlin with one park it would be Mauerpark. The design itself has allowed for flexibility, adaptability, and productivity. However, the design has led to much of the degradation. The events that take place there on Sunday's prove that its flexible. The establishment of the flohmarkt show its productiveness. For how long it has been there, it has been able to adapt for different generations. The design may not incorporate traces of a railyard (at first I had no idea it was once a railyard) but for the design to use granite, that would last a long time, now act as the traces of history as they are now grown into nature and have become part of the land.

Maintenance

Other than mowing grass and trimming shrubs, Mauerpark has no large tasks of maintenance. However, the park has been let go and vegetation including shrubs impact usability of some elements. The south entry tiered seat wall has become too overgrown that it is now unusable. As shown in the before photos, this was a space where a lot of people could gather. If the park was maintained more than it is now it would have had a longer lifespan. Unexpected

maintenance observed was the shovelling of the sand deposits from the hillside erosion on cowpaths.

Quality

The quality of construction has lasted this long and recieved a fair score. The use of wood was not a good choice as they are now rotting and always wet. The rest of the construction with granite has stood the test of time with some minor settling or just user vandalism. The galvanized steel grate on the north entrance has been compressed due to too much traffic, possibly a result of poor construction of the base.

Usability

Mauerpark has changed from original design with added elements like the wood on top of granite blocks and the basketball court. The court was once just a seating area with gravel but now has asphalt and one hoop. There is a playground that has been added in more recent times to accomodate for children and schools in the area. The only preventative tactic used was a small area of geotextile grid by a stormwater wall to resist foot traffic compaction.

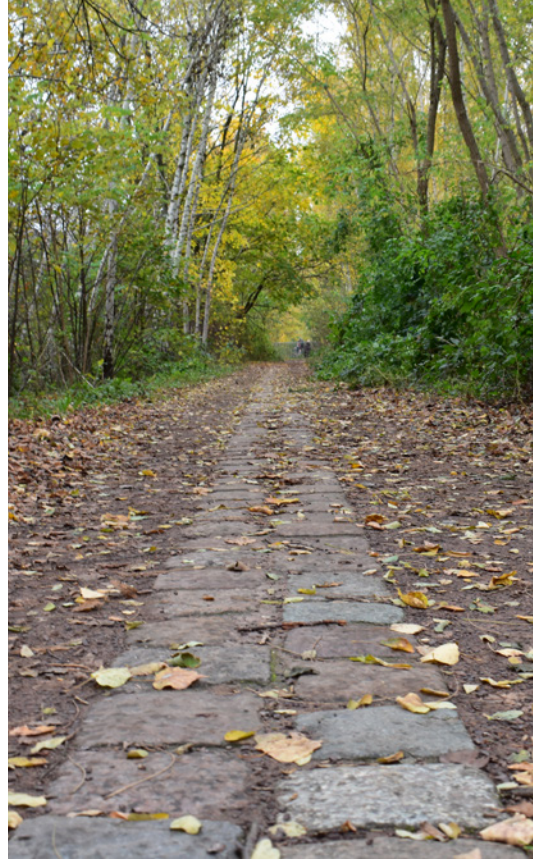
What is not working in the park are the seat walls at the south entrance. They are too overgrown to sit on or use. The steps up to the hill at the south entrance are unfavorable as a significant cowpath has been made over the years on the side of it. The steps are spread too far apart and are awkward to use. Three out of the five swings still remain so not all are usable but now act as frames to watch the sunset.

What has degraded the most are the wood pieces on the granite and the areas of lawn that have become overused. The main problem the park faces is upkeep but at the same time Berlin culture likes the "wild" feel.

What worked the best is the purpose of the park. I deem the park successful as it functions as to what it was expected to be by the people. Researching and looking at before pictures, it still has the same uses. Also, the choice to use long life expectancy materials like granite has withstood the intense use this park faces.

aspect	12345	score
design	<div><div></div><div></div><div></div><div></div><div></div></div>	3.6
quality	<div><div></div><div></div><div></div><div></div><div></div></div>	3.1
hardscape	<div><div></div><div></div><div></div><div></div><div></div></div>	2.7
structures	<div><div></div><div></div><div></div><div></div><div></div></div>	2.1
usability	<div><div></div><div></div><div></div><div></div><div></div></div>	4.5
tactics	<div><div></div><div></div><div></div><div></div><div></div></div>	0.5
total		16.5

>Park am Nordbahnhof





Nordbahnhof

Planning

FUGMANN JANOTTA PARTNER

Harald Fugmann, Martin Janotta, Reinhard Busch, Helge Herbst

Year

2010

Size

approx. 5.15 ha

Cost

approx. 2 million euros (net)

Client

Senate Department for Urban Development,
Green Berlin Park and Garden GmbH

“The Great Meadow at the North Station”_an urban natural park was created between Prenzlauerberg and Mitte. The uniqueness of the park is a result of its location in the urban space, the vegetation, and the remnants of history. The park was the former Stettiner Bahnhof, Berlin Wall death strip, and more recently an urban wasteland.

The park balances man made interventions in nature and landscape. Against this background, the urban natural park was developed under the concept of a large meadow that allows for ecological succession. The design accomodates many user groups and contains two “islands”. The islands are connected to the main path by galvanized steel boardwalks over nature and contain morphed seating or play equipment.

The park at the North Station is a place with special atmospheres, new sensory experiences, and invites visitors to discover traces of history. The historical layers [railyard, wall, industry] combined with the ability to grow ecologically make this park like no other. A place to develop and play, contains the feeling of seclusion from the city. The park is protected by fences and is entered via gates. Behind these narrow, channel like entrances lies a kind of “lost world”.

“...The combination of the basically competing, opposite aspects of ecology and intensive park use in an overall concept has been achieved in a convincing manner.”

Jury excerpt, German Landscape Architecture Prize 2011

5: Park am Nordbahnhof. (n.d.). Retrieved November 11, 2017, from <https://www.fugmannjanotta.de/en/landschaftsarchitektur/park-am-nordbahnhof-2/>

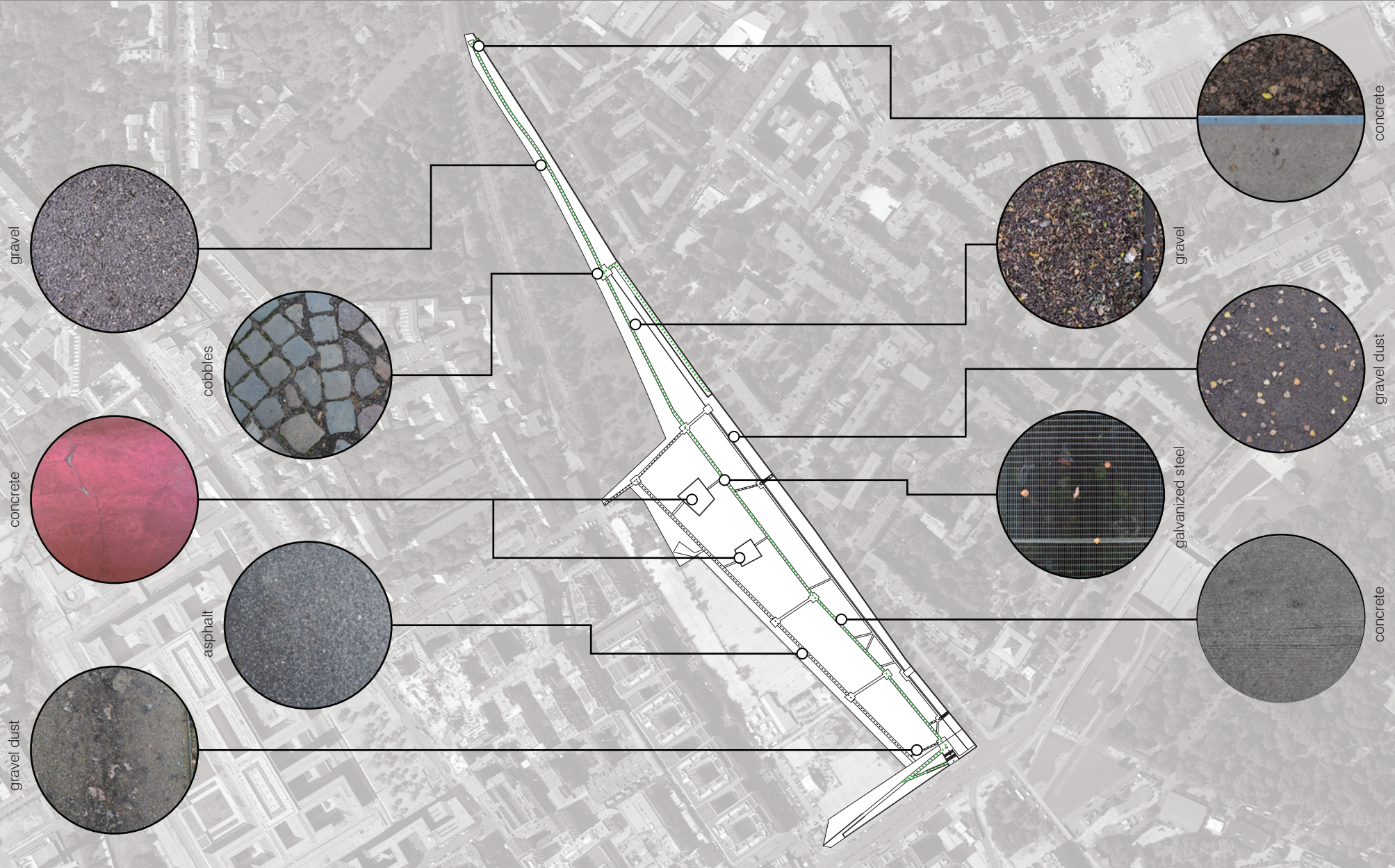
Inventory Matrix:

- Observations
- concrete sidewalk throughout is 8’ wide
 - people pick berries off of shrubs in “nature area”
 - all metal used is galvanized
 - pass through or strolling park like Mauerpark
 - trees and vegetation makes you feel secluded
 - people run or bike laps through the park around outer ring of walkways
 - noticeable skateboard degradation at south entrance
 - only six benches along the stretch of the main path
 - railing helps keep people off the grass/ “nature area”
 - Birch trees seem to be a common theme for post railyard parks

type	cracking	environment	skateboard	graffiti	settling	erosion
wall						
concrete		●	●	●		
steps						
<small>[precast]</small> concrete						
furniture						
steel bench						
steel _[concrete base]				●		
paving						
concrete	●			●	●	
cobbles					●	
gravel					●	●
asphalt	●	●				
railing						
<small>[galvanized]</small> steel						

Material Inventory

[with circulation]

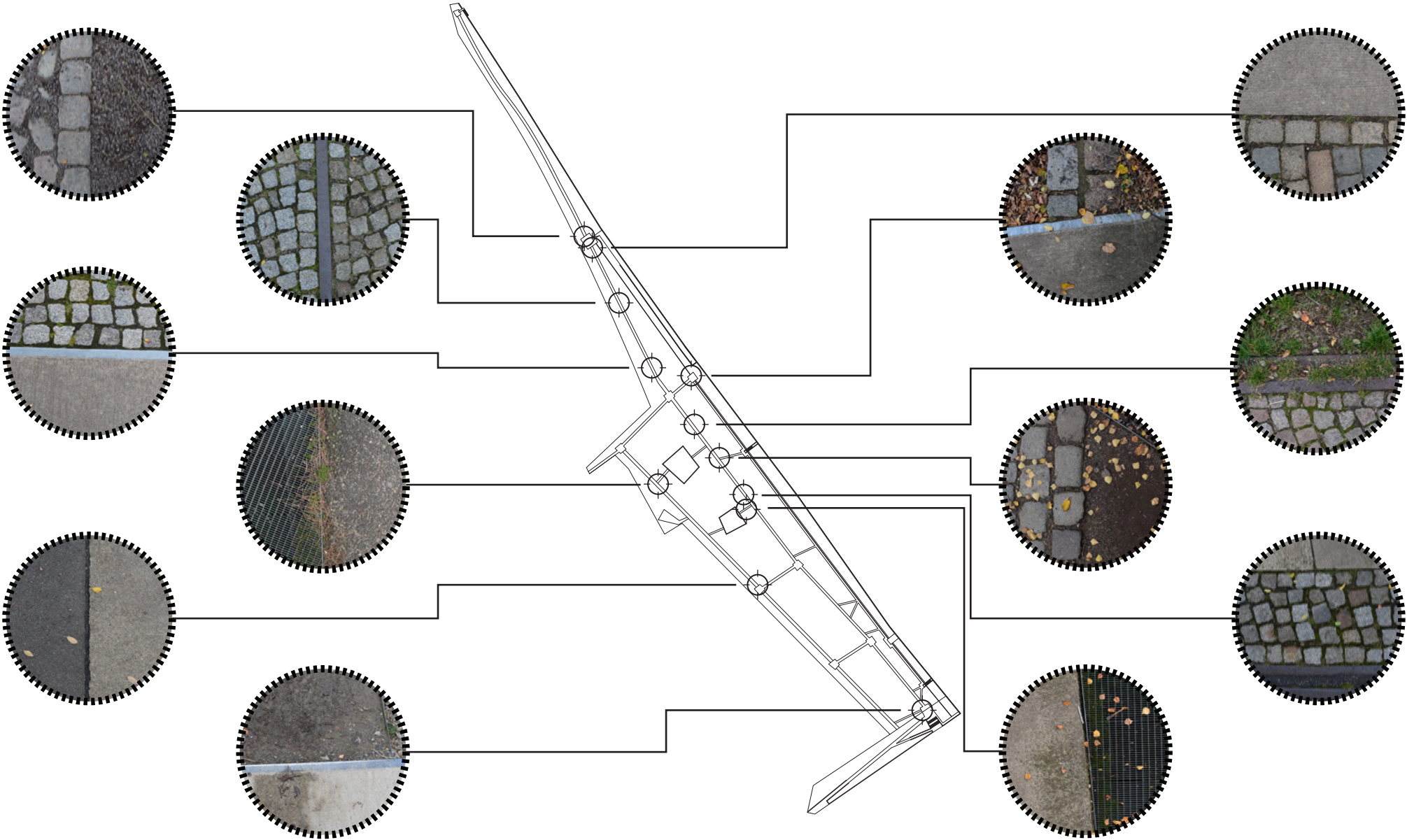


..... heavy foot and bicycle traffic

..... light foot traffic

200' N

Material Clashes



Degradation Faced

For almost eight years now, the park has performed well.

Activities Observed:

- Rollerblading
- Biking
- Walking/dog walking
- Running
- Playing
- Reading
- Sitting + talking
- Pushing a stroller



Galvanized Steel Boardwalks_ keeps people on a designated path and off an area that is left alone to success ecologically. The material itself will last for decades.



Galvanized Steel Railing_ the railing alone keeps people of the nature areas and allows for ecological succession.

Galvanized Steel Lip_ prevents concrete edges from being chipped or weathered by user traffic. Allows for slivers of concrete to exist in a design.

Preventative Tactics

These are ways the park combats common types of degradation found in landscape design.



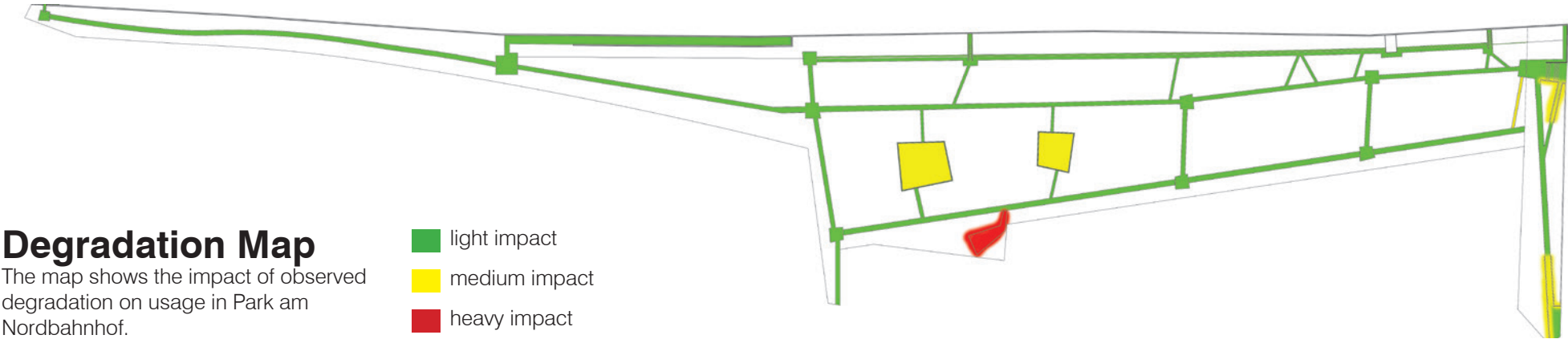
Expanding



Cracking



Cracking



Settling



Cracking



Settling

Before | After

seating island



graffiti and soil erosion by feet



historic traces



growth has covered materials



meadow



grasses have been mowed down



(left images) 5: Park am Nordbahnhof. (n.d.). Retrieved November 11, 2017, from <https://www.fugmannjanotta.de/en/landschaftsarchitektur/park-am-nordbahnhof-2/>

Site Performance

Design

The overall design of this park is simple and that is the beauty of it. It has taken the aspect of the Berlin culture that likes to have “wild” parks and turned it into areas for ecological succession. With railings around those specific areas allows for this to acutally happen. Some of the fruit bearing shrubs that have grown naturally, people are able to harvest berries off them. Once in this park, you feel like you are secluded from the city like the feeling of Central Park in New York. The only thing you can hear in the park is the rumble from the S-Bahn that runs underneath and daylights at the northend of the park. The design has fulfilled the need for the neighborhood and the designer took the wants of Grün Berlin into consideration.

The design of materiality and clashes is remarkable. To use the lip on the edges of concrete is a great idea and after eight years all of the concrete is in great shape. To use granite cobbles between the rails and concrete is a great detail. The cobbles are able to move if the rails do shift from contracting or expanding. They act as a cushion. The design of the morphed concrete benches and playground had good intentions but faces signs of significant cracking. The steel benches that exist in the park are going to last as long as the park does. However, they are cold to sit on but they have no graffiti on them. The south entrance faces skateboard degradation however that is the only place of that activity given the cheek walls along the ramps.

Maintenance

The park itself has little maintenance as that was the design. However, from comparing the before and after photos with research it appears that the grass meadow has been mowed in recent times. This could be a result of the grass not performing well or a maintenance error. Also, how would you get a lawn mower through the railing... it would have to be a push mower or a very short mower. As the park grows with time, there will be a need for cleaning up trees that die and adding more gravel or stone dust to paths as they have already settled a lot. There were no signs of unexpected maintenance.

Quality

The detailing of the park is spectacular. The quality of construction is evident with the ability to have no major problems after eight years. The ability to use galvanized steel throughout the entire park is a great way to prevent degradation in certain elements. From the railings, stairs, lip and edging the park has a high life expectancy and cause the park to perform well.

Usability

Over eight years, the park has not changed significantly. The only change is the addition of graffiti on the walls and seat elements, skateboard wear, and growth of vegetation. The growth is always expected as it is known for plants to grow and fill up space. The only unexpected changes are the skateboard wear and graffit as they are from users and unpredictable.

What is working well are the steel boardwalks as they look the same since opening day. All of this park is still usable. There is not one thing that is not working anymore.

What has degraded the most is the settling of gravel next to the grates below the steel benches.

I find this park highly successful and functioning as intended based off of my observations and research. This park has recieved a high performance rating from its durability, longevity, use, and growth. Also, because of the preventative tactics.

aspect	12345	score
design	<div><div></div></div>	4.2
quality	<div><div></div></div>	4.6
hardscape	<div><div></div></div>	4.1
structures	<div><div></div></div>	4.3
usability	<div><div></div></div>	4.8
tactics	<div><div></div></div>	3.9
total		25.9

> Park am Gleisdreieck





Gleisdreieck

Planning

ATELIER-LOIDL

Felix Schwarz, Andreas Lipp

[Energy/Lighting Design]

Ingenieurbüro I. Acker

Year

2011-14

Size

approx. 26 ha

Construction

Bauleitung

Client

Green Berlin GmbH

From late 19th century to the aftermath of the Second World War, the site was a freight and mail railyard that linked to Anhalter Bahnhof and Potsdamer Bahnhof. It gets its name from the railway lines that intersected here in the form of a triangle or *dreieck*. The space gradually turned into an inaccessible urban wasteland. Plans were made in the 1970s ranging from road building to housing, however, citizens found it far more valuable as a park like Nordbahnhof. By 1997, the State of Berlin decided to turn the site into a park.

From the beginning, residents have been actively involved. The approximately 26-hectare park on the Gleisdreieck, consisting of the Ostpark and Westpark, has developed into a popular destination for Berliners and tourists.

The design takes all user groups into account and is a genuinely public park for everyone. Skaters and joggers, young and old, walkers and beach volleyball players, picnickers and sports enthusiasts, nature explorers and technology fans can all find plenty of space and facilities here.

Received:

Berlin Architecture Award 2013

German Urban Design Award 2014

German Landscape Architecture Award 2015

Site Inventory

[using photography]

Benches



Steps | Precast | Corten | Wood

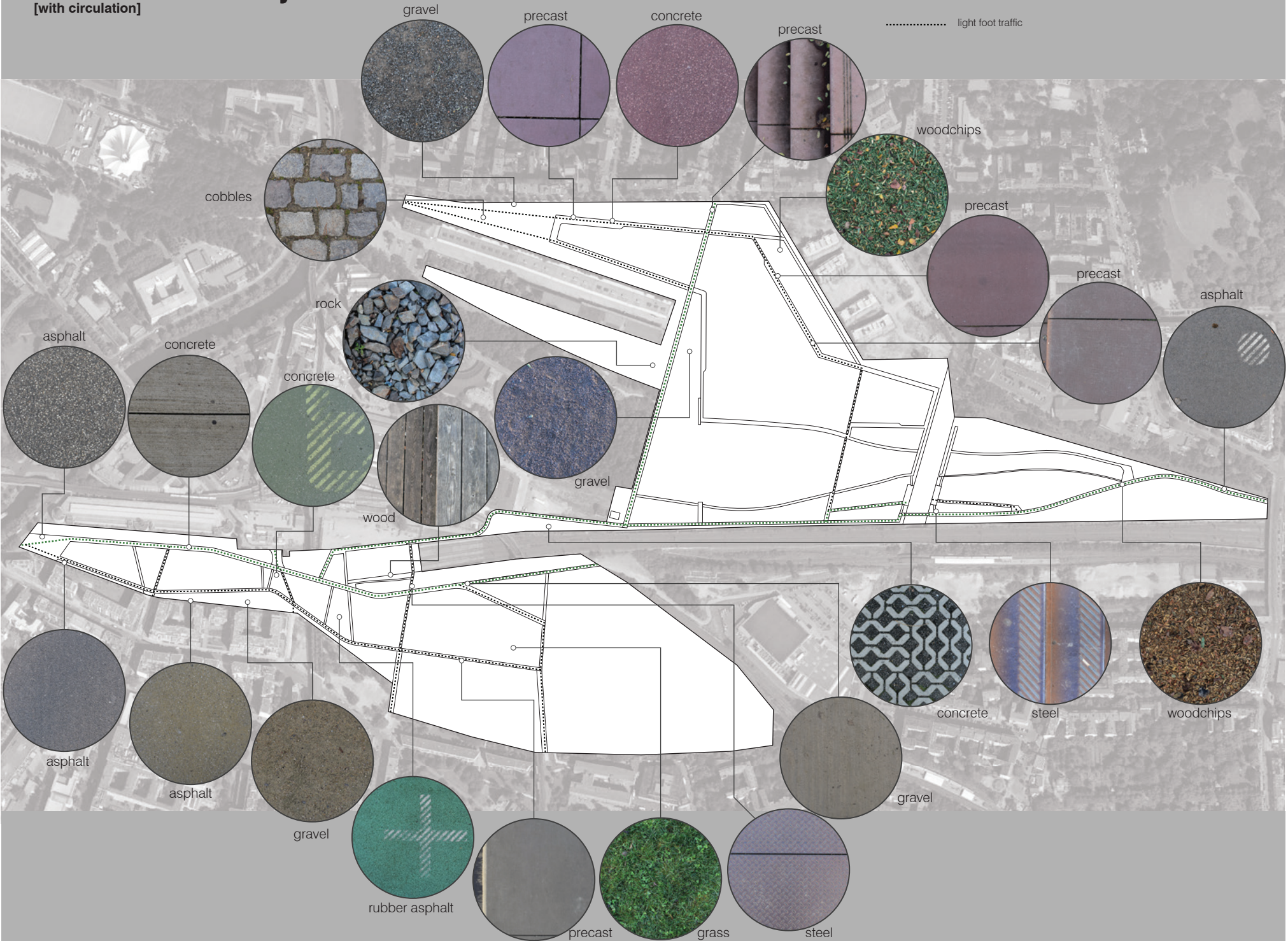


Material Inventory

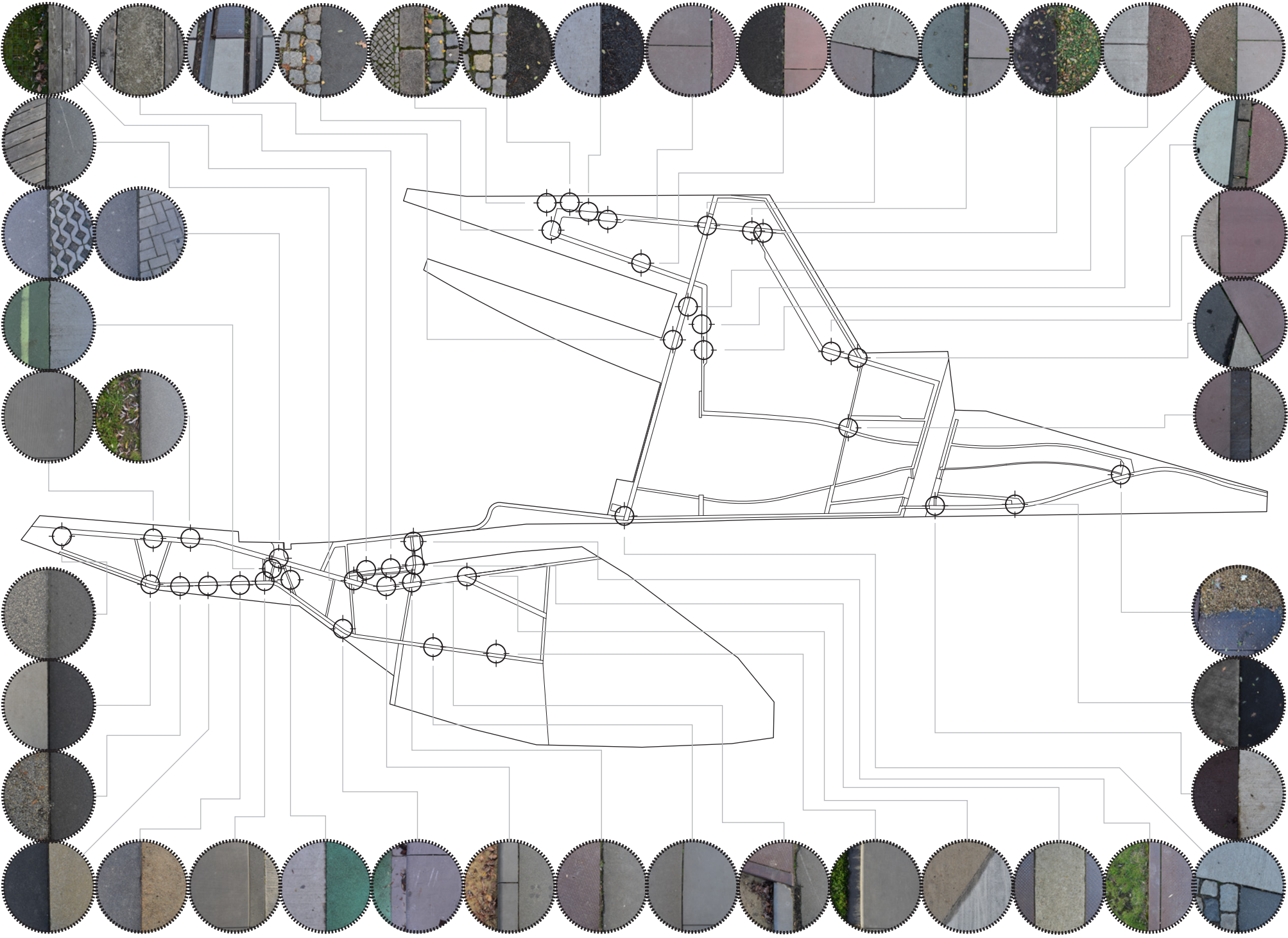
[with circulation]

..... heavy foot and bicycle traffic
..... light foot traffic

200' N



Material Clashes



Before



(images) 6: A. (n.d.). Atelier-loidl. Retrieved December 5, 2017, from <http://www.atelier-loidl.de/atelier/projekte/?lang=en>

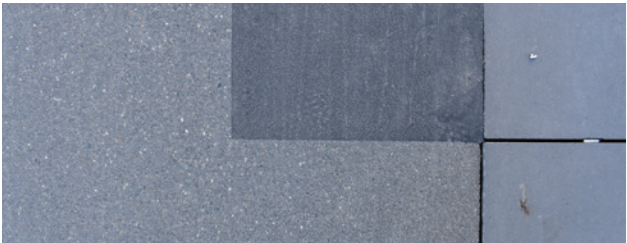
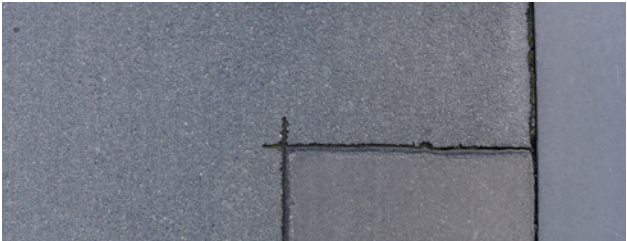


Now

Because Gleisdreieck has opened recently, evolution of the park has not revealed itself. Materials like wood have changed color and graffiti has been scattered over certain spaces but the preventative tactics combat against paint. The performance of the park so far has faired well. It will be interesting to see what happens to certain areas in the future.



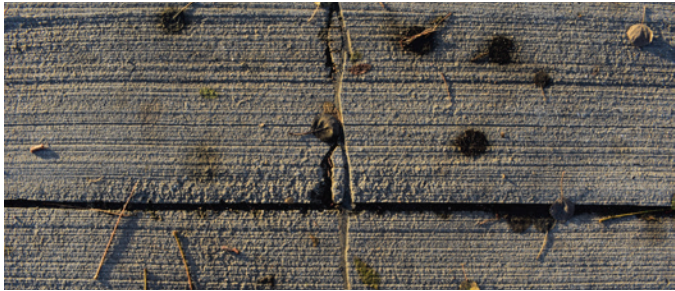
Observed Degradation



environment vs. wood



cracking or chipping



type	cracking	environment	skateboard	graffiti	settling	erosion
wall						
concrete				●		
wood				●		
corten						
steps						
[precast]concrete						
corten						
wood		●				
furniture						
concrete			●			
wood		●	●	●		
paving						
concrete	●					
asphalt		●				
[rubber]asphalt		●				
cobbles					●	●
stone dust					●	●

Degradation Prone Areas

The map shows predicted life expectancy of areas in Park am Gleisdreieck based on current observed degradation and observations of materials in Mauerpark and Park am Nordbahnhof.



Skateboard Impact [on Certain Materials]

Chipping and discoloration on concrete



Splintering and shredding of wood



Preventative Tactics

skateboard
using harder materials or
deflection devices



graffiti
planted wall, sandblast corten
steel, powerwash wood



vandalism/reinforce
powerwash, metal grates with
benches, metal between clashes



Site Performance

Design

Given the situation of the park, the design has been able to accomodate all user groups. The size of the park allowed for programmed spaces to be spread throughout. The design of the park allows for different speeds of travel (bike+pedestrian) along the main paths.

The design uses high cost materials with long life expectancy. A large investment in a park like this should use materials to last a long time. It would be a waste of money to see a park turn into shambles before 20 years. The design of this park and material use has given the park a high performance score.

Being able to observe and study a park that has been opened recently allows me to see early signs of long term degradation as well as unexpected usages. From observations and pictures, this park was well prepared for certain types of degradation.

Maintenance

The park does have large green spaces that require mowing. Because of some preventative tactics like corten and wood, maintenance has to sandblast and powerwash these surfaces to remove graffiti. How long they will be able to keep this effort up is a good question to think about.

The park design includes areas and trails with woodchips that will require addition of material. Unexpected maintenance that I observed was the cutout and repair of asphalt in certain areas as well as the replacement of wood boards on the seating wall area.

Quality

I think because the park is large it leaves a larger margin for construction error. The design uses precast units for some of the large pathways and some have chips that were caused from either the transport or the placement of the material. Some of the concrete pathway in the middle of the park is cracking from upheaval and settling. Some of the control joints between different materials do not line up so it has resulted in cracking. The entire park was constructed with great detail and after just a few years it has shown little degradation. It was hard for me to find flaws. One thing I observed to keep in mind with quality of asphalt is that there can be end of batch lines in the material where the paver had to stop for the day.

Usability

Not one section or element in this park is unusable. Because this is a new park I have only been able to observe a few years of

change in the park. As a result, I predict the future of the park based off of the observations of my other two parks, research, and current degradation. What has developed over time is a cowpath that shows desirable travel between an entrance to the U-Bahn station. Also, the paint on the asphalt mound area has faded significantly.

Overall the park is successful at achieving its purpose, use of materiality, and preventative tactics. It has durability, longevity, productivity, and flexibility.

aspect	12345	score
design	<div><div></div></div>	4.6
quality	<div><div></div></div>	4.8
hardscape	<div><div></div></div>	4.3
structures	<div><div></div></div>	4.7
usability	<div><div></div></div>	5.0
tactics	<div><div></div></div>	4.5
total		27.9

Mauerpark

I was able to observe the impact of intense one-day usage has on a park. This was a significant part of the study as it showed what a park at the end of its life looks like. Examples of long term degradation were evident all throughout the park. It has become exhausted from the use and is overgrown with unwanted vegetation. The park performance is successful because of the Berlin culture. The culture of the people keep this park alive and give it character.

Park am Nordbahnhof

This park was comparable to Mauerpark as it was linear and the same size. They both have one main path. The findings from this park provide examples of what to do in future designs. The park achieves simplicity and longevity with its design. The historic traces and feeling of seclusion give it character. The park has a long life ahead of it.

Park am Gleisdreieck

For being such a large park, the findings of simple faults were exposed. The park accomplishes the ability to serve plentiful user groups with programmed spaces. Because it is such a new park, there are only a few years exposed to degradation. Therefore, I have a few predictions from all of my findings and research.

I predict that:

- the wood seating area will not last as long as it is planned to
- the rubber asphalt will soon start to fall apart
- the woodchip areas will be left alone and will become overgrown
- graffiti will appear everywhere
- the wood benches will last <10 years
- the swings will break like they did in Mauerpark
- the concrete will have severe cracking
- the asphalt will continue to have problems

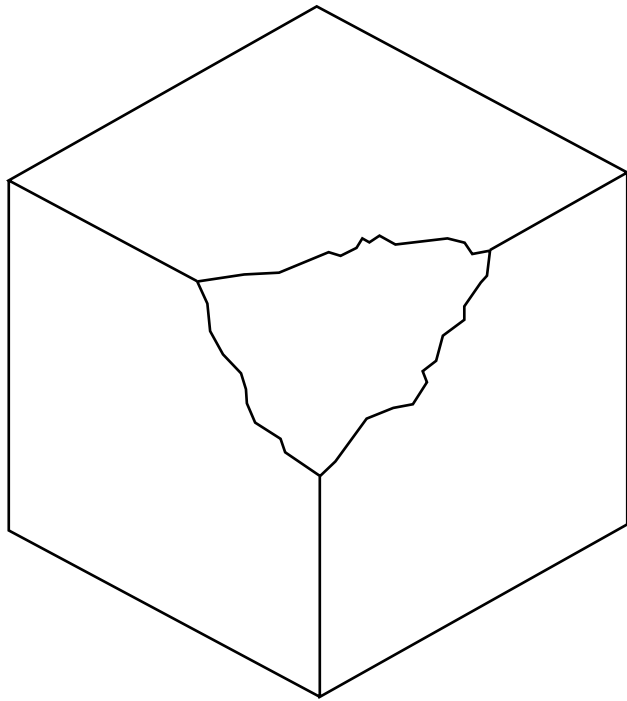
Trends

Found in all of the parks is that cowpaths show desirable pathways. Mauerpark has no historic traces, which is different from the other two. Wood does not last and is proven by Mauerpark. Graffiti is unpredictable and is a part of the culture in Berlin. Skateboard degradation is unpredictable but can be controlled by either using preventative tactics or a rugged ground material like cobbles. Evident in all of the parks is that quality of construction prevents settling and cracking.

Tactics

The trends are all universal issues and can be combatted with these tactics.

- corten steel
- galvanized steel
- wood (to be powerwashed)
- planted ivy fence
- grates in front of benches
- skateboard deflectors



Proposal for Solutions

Based off of my findings and study of materiality in my selected sites, I have been able to learn from the faults and failures. Using different techniques and designs from each park that have performed well, solutions can be proposed to prevent usage impacts in the future of park designs by using what has worked well.

With my conducted inventory and new knowledge of preventative tactics, I can provide solutions for the trends of universal issues between the parks. Certain situations have occurred with common outcomes that can be learned from.

During the design process of a landscape, it is important to keep the common outcomes and forms of degradation in mind to minimize the amount of impact on usage and performance. Clients want to have a park that will last for the money they invest.



Mauerpark Solutions

The vegetation growth has impacted the use of the park significantly. The overgrowth the park has can easily be solved by maintaining it. To trim and cutback certain plants would make elements usable again. The larger plants could be taken out and a new planting design would be ideal for this park. Berlin culture likes to have “wild” parks but there can be a wild feeling with a good planting plan.



Because people like to take their bike up to the hilltop and the steps an awkward tread length, a cowpath has developed next to them. The solution to this problem is to make a sloped ramp like there is on the other end of the hill made of the granite cubes.

The problematic hillside with cowpaths up to the top could be solved by providing stairs at the locations where they occur or to plant rows of short shrubs staggered along the hillside to break up direct paths to the top.



Cowpaths that result from intense usage on Sundays could be solved by placing a hardscape path where they occur for through traffic. However, this solution contradicts the culture of Berlin by providing a path that would control movement. An added solution is to create pop-up fencing that changes weekly so that it disperses the usage. Taking the idea of the railings at Nordbahnhof and turning it temporary is a solution. Where there is a large compacted area, a hardscape patio can be added.





The skateboard wear on the concrete cheek walls along the ramps for the entrance of the park can be solved by using one of the tactics found in the park. The galvanized lip could have been added and would have resisted the wear.

The settling of the gravel around the grates have caused a tripping hazard. The addition of gravel would be the quick solution. What can be learned from this is to make sure a solid base is in place for the gravel to minimize settling.



This was unexpected for the concrete to chip at this location. The rail has expanded and pushed on the concrete causing the chipping. The solution to this would be to add an expansion strip material between the clash. What can be learned from this is that materials expand and contract.

The tiny gaps in the steel lip have caused cracking in the concrete. To solution would be to use full pieces along the edges.



Nordbahnhof Solutions

The park offers valuable findings and examples of preventative tactics. I will be able to use the tactics in future designs. The use of galvanized steel is expensive but can last a long time. It resists rusting and can help other materials resist degradation such as the steel lip found on the concrete. The railing on the stairs have been grinded on by skateboarders but there is no visible wear on them other than some small black lines. I expect Nordbahnhof to last a long time because of the incorporation of the tactics.



Gleisdreieck Solutions

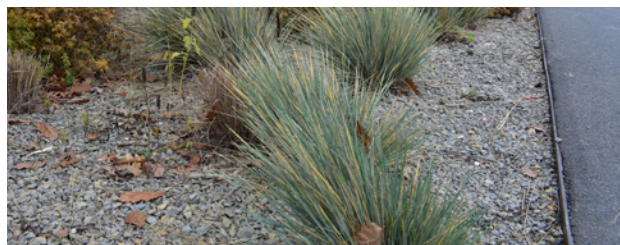
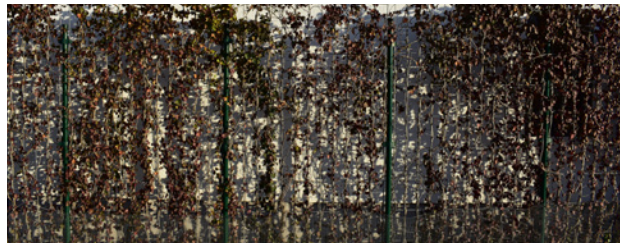
The findings and preventative tactics I observed at this park are beneficial to my future design knowledge. I found ways to combat degradation types in ways that I have never thought of. The corten steel walls can be sandblasted and remain unharmed. Sometimes the tactics do not work the first time and have to be changed like the skateboard defectors. Using a planted fence against a wall that you do not want graffiti is a great idea. The use of metal edging between materials is a great way to prevent cracking especially for a material like asphalt that has a low tensile strength.

Since there is only a few years under its belt, the solutions for this park are design solutions. The current degradation is minimal like cracking and chipping that can be solved from better construction quality. The chipping of the precast units was a result from poor handling of material.

The cowpath that formed from the U-Bahn station and the Lützowstraße entrance is the result of unexpected connection between the two. The solution would be to add a concrete walk in place of the dirt path.

The carve outs in the path where there are trees going had good intentions. I find it a terrible design choice. You can see the obvious result when the tree dies where the

carve out is. Once the tree dies the carve out has no purpose. Trees will have to be planted in place when they die to not make the carve outs look pointless.



The ability to examine the impact of natural processes, user activity, and time on site usability while in a foreign place is a lot to take in. To adjust and learn a new culture that has different views of park standards than my own was eye opening. By experiencing a foreign culture, I have broadened my outlook on the way people can live and use landscapes. Not everyone cares for a well-lit, manicured park.

The people of Berlin are what make the city great and unique. They like parks to possess a “wild” feeling and to be able to be wild by doing what they want where they want. I have gained the experience of living in a different lifestyle and learn from it. One can learn a lot from another culture from the way they talk to the way they like their parks. I walked a lot while in Berlin and probably the most I ever had in my life.

Urban parks in Berlin are changing over time due to types of degradation discussed in this study. The degradation impacts the use of certain landscape elements found in my sites. I have found what works and what has not by looking at three parks with a connecting theme with different opening dates. My findings have allowed me to begin to predict the future of Gleisdreieck based off of what I have learned from Mauerpark and Nordbahnhof. I now have a greater knowledge about material life expectancy and performance by observing materiality and studying certain preventative tactics. By looking further into site performance, I discovered durability, function, aesthetics, and management within urban spaces and I can now make better, more informed decisions in my future practice.

The key to success is to learn from failure. The preventative tactics I observed do not guarantee success. Performance is not always measured by aesthetics but usability and Mauerpark proves that. Culture is what defines Berlin and their parks. There is no single solution to minimize a certain type of degradation as most are unpredictable. The best practice is to learn from the past and to not the same mistake twice. By looking at every aspect of a design including material clashes, edge treatment, and certain situations, site performance will achieve a higher life expectancy.

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A special thanks to my advisor, Professor Timothy Toland at SUNY-ESF, for the opportunity to conduct this study and participate in the design charrette with the Osnabruck students. Another thanks to my place advisor, Lorenz Dexler from Topotek1, for being a great host and all of the time he was able to set aside for our group. I thank my friends and family for the memories that will last a lifetime and encouraging me to continue to pursue greatness.

